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Response of Forward Stroke Volume Predict Clinical Outcomes and Echocardiographic Changes after Percutaneous Mitral Valve Repair with MitraClip System

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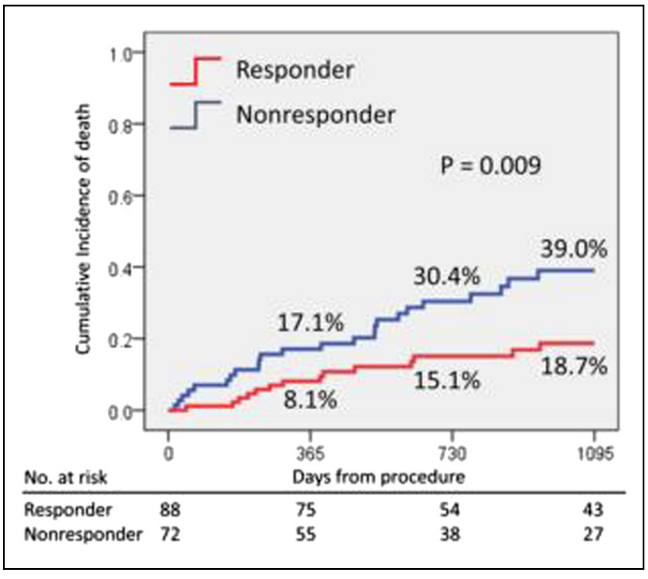
BACKGROUND Although forward stroke volume (FSV) increases after the successful MitraClip procedure for significant mitral regurgitation patients, the effect of FSV response on their outcomes remains unknown. In this study, the prognostic impact of FSV response after the MitraClip procedure was investigated.

METHODS Study population included 160 patients with the successful MitraClip implantation whom FSV was able to be calculated using pulse-wave Doppler at baseline and discharge in transthoracic echocardiography. Responder of FSV was defined as an increase greater than 10% in baseline FSV at discharge. Clinical and echocardiographic outcomes were compared between responders and nonresponders of FSV.

RESULTS There were 88 responders (42.6 ± 9.7 ml to 59.3 ± 13.5 ml, p<0.001) and 72 nonresponders (54.0 ± 11.3 ml to 49.2 ± 11.3 ml, p=0.001) of FSV after the procedure. In both groups, left ventricular (LV) end-diastolic volume was reduced and LV end-systolic volume was not changed at discharge. Further reduction of LV end-diastolic and end-systolic volumes was observed from discharge to 12-month follow-up in responders (149.2 ± 43.7 ml to 140.1 ± 45.3 ml, p=0.003; 80.8 ± 38.3 ml to 75.1 ± 40.9 ml, p=0.01) but not in nonresponders (152.8 ± 56.2 ml to 154.1 ± 58.1 ml, p>0.99; 89.9 ± 51.2 ml to 88.4 ± 54.8 ml, p=0.48). Although New York Heart Association functional class improved in both groups, it was significantly better in responders at 12-month (p=0.048). Among patients with estimated glomerular filtration rate (eGFR) <60ml/min/1.73m^2, significant improvement in eGFR was observed in responders (38.3 ± 13.4 ml/min/1.73m^2 to 43.0 ± 14.6 ml/min/1.73m^2, p=0.02) and not in nonresponders (38.2 ± 13.3 ml/min/1.73m^2 to 38.8 ± 18.3 ml/min/1.73m^2, p=0.76). The median follow-up duration with surviving patients was 1139 days (interquartile range 517 to 1813 days). All-cause mortality at 3-year was significantly lower in responders (18.7%) than in nonresponders (39.0%, p=0.009) (Figure). Multivariate analysis identified nonresponders of FSV as an independent predictor of all-cause mortality (hazard ratio 2.03, 95% confidence intervals 1.05-3.95, p=0.04).



CONCLUSIONS Responder of FSV after the MitraClip procedure was associated with more favorable clinical outcomes. The FSV response could predict the subsequent LV reverse remodeling.

CATEGORIES STRUCTURAL: Valvular Disease: Mitral

KEYWORDS Echocardiographic assessment, Mitraclip, Mitral regurgitation therapy

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Left Atrial Appendage Occlusion in Patients with Atrial Fibrillation and Intracranial Bleeding: Results from the Amplatzer Cardiac Plug Registry

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BACKGROUND Left atrial appendage occlusion (LAAO) may be considered in patients with non-valvular atrial fibrillation and contraindication to oral anticoagulation therapy. We aimed to investigate the procedural safety and long-term outcome of patients undergoing LAAO therapy due to previous intracranial bleeding (ICB).

METHODS Data from the Amplatzer Cardiac Plug multicenter registry on 1047 consecutive patients were analyzed. Patients with previous ICB as indication for LAAO were compared to patients with other indications.

RESULTS A total of 198 patients (18.9%) with previous ICB were identified. They were more commonly male (69.7 vs 60.1%, p=0.012), with history of previous stroke (63.6 vs 32.7%, p<0.001). The CHA2DS2-VASc score was similar (4.5±1.5 vs 4.4±1.6, p=0.687). The HAS-BLED score was higher in patients with previous ICB (3.5±1.1 vs 3.1±1.2, p<0.001). The annual stroke risk was similar (5.7±2.8% vs 5.6±2.8%, p=0.480) whereas the annual major bleeding risk was higher for patients with previous ICB (6.4±3.9% vs 5.1±3.7%, p<0.001). There was a trend towards less peri-procedural major safety events for patients with previous ICB (2.5 vs 5.4%, p=0.1). The average follow-up was 1.3 years. The observed annual stroke/TIA rate (procedure and follow-up) for patients with previous ICB was 1.4% (4.3% absolute reduction, 75% relative reduction according to the CHA2DS2-VASc score) and 2.5% for the rest (3.1% absolute reduction, 55% relative reduction). The observed annual major bleeding rate (procedure and follow-up) for patients with previous ICB was 0.7% (5.7% absolute reduction, 89% relative reduction according to the HAS-BLED score) and 2.4% for the rest (2.7% absolute reduction, 47% relative reduction).

CONCLUSIONS Patients with previous ICB as an indication for LAAO had a significant reduction in stroke/TIA and a remarkably low frequency of major bleeding during follow-up.

CATEGORIES STRUCTURAL: Left Atrial Appendage Exclusion

KEYWORDS Bleeding, Intracranial, Stroke

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A comparison of three-dimensional echocardiography and computed tomography in sizing the D-shaped mitral annulus before transcatheter mitral valve implantation

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BACKGROUND Cardiac computed tomography (CT) imaging of the mitral annulus plays an integral role in appropriately sizing a transcatheter mitral valve implantation (TMVI) device. There are risks of TMVI including paravalvular regurgitation and left ventricular outflow tract (LVOT) obstruction. To mitigate these risks, measurement of a D-shaped annulus has been proposed and has largely been performed using cardiac CT. We sought to establish the accuracy of